

REMARKS

Applicants thank Examiner Wong for her courteous and congenial telephone interview with Applicants representative on November 21, 2006.

Claims 1, 5-6 and 8-10 are pending in the present application.

Claims 2-4 and 7 are canceled. Claims 4 and 7 are canceled with this Amendment.

Claim 1 is amended to recite the subject matter of canceled claim 7.

Support in the specification for new claim 8 is at the end of the application which discloses examples where the bismuth (III) ion concentration is at 0.05 g/L.

Support in the specification for new claim 9 is at page 3, lines 11-18 and page 5, lines 21-30.

Support in the specification of claim 10 is at page 6, lines 9-11.

Claims 1 and 5-7 are rejected under 35 U.S.C. §103(a) as allegedly unpatentable over JP 7-138782 ('782) in combination with JP 11-181589 ('589). Applicants respectfully traverse this rejection.

Claim 7 is canceled. Accordingly, the rejection with respect to this claim is moot.

Claim 1 is amended to recite that the bismuth (III) ion concentration is 0.02-0.2 g/L. The electrolyte tin-plating solution is directed to a lead-free tin plating solution for soldering. Although the tin-plating solution includes bismuth (III) ions, it is not a tin alloy solution but a tin-plating solution. As discussed in the telephone interview the language in the preamble can limit the invention as a whole if it is necessary to give meaning to the claim in order to properly define the invention. See *Perkin-Elmer Corp. v. Computervision Corp.*, 221 U.S.P.Q. 669, 675-76 (Fed. Cir. 1984). The preamble "breathes life and meaning into the claims." See *Corning Glass Works v. Sumitomo Plastics U.S.A.*, 9 U.S.P.Q.2d 1962, 1966 (Fed. Cir.1989).

The low concentration of bismuth (III) ions enables excellent solderability and avoids the formation of an undesired brittle tin/bismuth alloy deposit. Additionally, including bismuth (III) ions in amounts of from 0.02-0.2 g/L enables good electrical properties and soldering wettability without lead. See specification, page 1, lines 7-11, page 2, lines 6-8, page 4, lines 17-22. Tin/lead alloys, in general, are becoming more and more undesirable because of the toxicity of lead to the environment. Accordingly, electrolyte tin-plating solutions which provide

comparable solderability, wettability and electrical conductivity are highly desirable. The presently claimed invention provides a tin electrolyte having the desired properties and at the same time does not form a tin/bismuth alloy, which may cause undesired brittleness.

'782 and '589 alone, or in combination, do not teach or suggest the presently claimed invention. The person of skill in the art would have had no reason or motivation to look to '782 to make the tin electrolyte of the presently claimed invention. '782 is not pertinent to the problem which the presently claimed invention is directed to. See *In re Clay*, 23 U.S.P.Q.2d at 1060-61. '782 is directed to a plating bath for a tin/bismuth alloy (paragraphs 0001 and 0003), not an electrolyte tin-plating bath as the presently claimed invention. The '782 patent is directed to a tin/bismuth alloy bath for depositing tin/bismuth alloy for tinning and pewter plating for insulating materials, ceramics, lead glass, plastics and ferrite which does not cause deformation and deterioration of the plated object (paragraph 0002), not for improving wettability for soldering and good electrical conductivity. The '782 patent is directed to a completely different problem than the presently claimed invention.

'589 does not make up for the deficiencies of '782 patent. The '589 patent as the '782 patent is not pertinent to the problem addressed by the presently claimed invention. *Id.* The '589 patent is directed to tin alloys and tin alloy plating baths, not a tin plating bath and tin deposit as the presently claimed invention. In particular, the '589 patent is directed to a tin/zinc alloy and bath. The parameters and concentrations are disclosed for zinc, not bismuth (paragraph 0019). Further, the '589 patent discloses using polyoxyethylene nonylphenyl ether as a stabilizer for tin alloy baths especially tin/zinc baths (paragraph 0015). The presently claimed invention is not a tin alloy bath but a tin solution. Accordingly, the person of skill in the art would have had no reason or motivation to include polyoxyethylene nonylphenyl ether in the presently claimed tin solution based on the disclosure of '589.

Applicants respectfully request withdrawal of the rejection of claims 1 and 5-6 under 35 U.S.C. §103(a) as allegedly unpatentable over JP 7-138782 in combination with JP 11-181589.

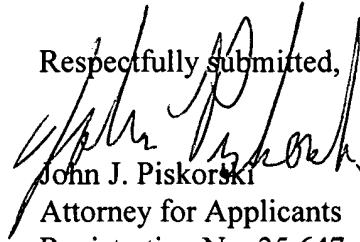
Claim 4 is rejected under 35 U.S.C. §103(a) as allegedly unpatentable over JP7-138782 in combination with JP 11-181589.

Claim 4 is canceled. Accordingly, this rejection is moot.

Favorable consideration and allowance of claims 1, 5-6 and 8-10 are earnestly solicited.

Should the Examiner have any questions concerning this response or this application, or should she believe this application is for any reason not yet in condition for allowance, she is respectfully requested to telephone the undersigned at the number set forth below in order to expedite this application.

Respectfully submitted,



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